

The Changing Seasons

*Computerization of one season—Spring Migration 1982—
hints at an unlimited potential for new and
exciting directions in migration analysis*

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TO HENRY DAVID THOREAU, Spring meant listening to "the faint silvery warblings heard over the partially bare and moist fields from the bluebird, the song sparrow, and the red-wing" at Walden Pond.

Every morning in April and May for the past ten years, dawn has found me censusing migrant and resident birds in small, wooded Kleinstuck Preserve, my 50-acre "Walden" in the middle of a city of over 80,000 people; I share my path with joggers and dogs. Here I observe the progression of birds in Spring, and record the diversity and abundance of birds attracted to this urban oasis.

During these ten years I have become increasingly aware of the significance of Spring migration to the overall distribution and abundance of birds.

When changes such as latitudinal shifts, overflights, and even migration suspensions occur in migratory paths (Leck, *J. Field Ornithol.* 51(2):168-172), new population centers of birds are established. When population centers are decimated by unseasonal weather disturbances, such as the storms which swept across the northern regions of the United States in early April 1982, causing thousands of mortalities of various species, these alterations are reflected at Kleinstuck Preserve.

While "migration seasons are not the best times of year to judge how species populations are faring . . ." (Arbib, *American Birds* 35(5):794), migration studies are valid for many uses. A simple count of migrants may be an indicator of population levels, especially where species are difficult to census at other seasons or where results help corroborate data from other seasons. Studies which emphasize timing of migration, the overall geographical distribution of migrants, and migrant ecology are also needed.

Recently, David Hussell demonstrated that migration counts in any form could be improved by using multivariate regression techniques to assign variability in counts to year, date, weather factors, and other variables (*Studies in Avian Biology* No. 6, Cooper Ornithological Society 9-102).

In North America, migration counts have not received the attention they have in Europe. For example, in 1976, Great Britain and Ireland had 14 bird observatories. In Michigan (one half the area) there are only two: Whitefish Point Bird Observatory and the Kalamazoo Nature Center. In many states there are none.

Establishment of additional bird observatories to help monitor migration should be a high priority in North America. Scan the pages of regional reports in this issue; comparative migration counts of passerines are noticeably scarce. New observatories would facilitate in-depth investigations. Funding is a problem, but observatories can and do exist with mostly volunteer labor.

Another alternative would be coordinated nationwide migration studies similar to the Christmas Bird Count, Breeding Bird Survey, North American Nest-Record Card Program, Breeding Bird Census, and Winter Bird-Population Study.

THE YEARS 1984 AND 1985 will mark the hundredth anniversary of a project, under the direction of Professor W.W. Cooke (*cf.* Gauthreaux, *AB* 28(4):771), to study Spring bird migration through the Mississippi Valley. Perhaps we should undertake a modern equivalent of Cooke's study, using current technology, thus providing ourselves with baseline data against which future changes can be measured.

In Cooke's time, such a continent-

wide study would have taken half a lifetime to analyze. Computers now make studies such as this well within the realm of possibility.

For many years, the advantages of using computers were partially offset by the time required for data entry. Technology is solving that problem. Improvements such as card readers, optical scanners, and voice-activated data entry will increase the advantages of using computers. As memory and processing power become less expensive and computers increasingly more familiar, computing will revolutionize the way birders handle observations. Ultimately, computing will eliminate redundant paper work and reduce the delay and inaccessibility of information, more population data will find its way in a timely manner to the regional editors of *American Birds*. A reduction in time spent in data processing will increase time available for field observations.

The need to computerize the mass of information contained in *American Birds* is readily apparent to anyone taking more than a cursory glance at any recent issue. Counting first and last dates as separate observations, there are over 7500 observations in "The Spring Migration" through which editors of this column must wade!

IN AN EFFORT to create order out of chaos, observations from 24 of the 26 regional reports (excluding Hawaii and West Indies) for Spring 1982 were entered into the Nature Center's Alpha Micro micro-computer model AM 1051. This unit is a multi-user system with 90 million characters of hard disc storage. The categories (fields) chosen for each observation were species, number of individuals, date, location, state, region, trend, flag (number of observations), and whether or not nesting was

Table 1. Illustration of coding printout of selected records of Magnolia Warbler, 1982

Record	Species	Number	Date	Location	State	Trend	Region	Nest	Flag
2392	MAWA	1	430	COTTONWOOD	MN	*VE	WGL	N	1
2869	MAWA	1	418	LACEY KEOS	IA	A-E	MIP	N	1
2870	MAWA	1	612	CHICAGO	IL	LT	MIP	N	1
4110	MAWA	2400	507	GALVESTONI	TX	GW-BE	STR	N	1
6236	MAWA	999999	0	MANOMET	MA	BA-IN	NEMA	N	1
6896	MAWA	1	526	CASWELL SP	CA	II-SP	MPCR	N	1
7550	MAWA	1	5	DYER	NV	RR	MOWE	N	1
SUB-TOTAL:									7
TOTAL:									7

Number Code: **999999** Increased numbers **BE** Best **LT** Late
 Trend Definitions: ***** Unprecedented **E** Early **RR** Rare
1 First **GW** Grounded Weather **SP** Spring
A Arrived **I** Inland **VE** Very Early
BA Banded **IN** Increase

Region Abbreviations: **MIP** Middlewestern Prairie Region
MOWE Mountain West Region
MPCR Middle Pacific Coast Region
NEMA Northeastern Maritime Region
STR South Texas Region
WGL Western Great Lakes Region

observed (Table 1). Each observation was given a record number and the information for each field was coded as it was entered. Species were identified by a four-letter standard abbreviation code developed by the federal Bird Banding Laboratory. Approximately 40 species codes were created, following the method used by the Bird Banding Laboratory, because codes for these species or generic species groups (*e.g.*, ducks, warblers) had not been assigned previously. Standard abbreviations are more satisfactory than A.O.U. numbers, because the degree of recognition with letters reduces the risk of input error. As an added check, the species name was echoed on the terminal upon input. The standardized two-letter abbreviations for states were used.

Where no standardized abbreviations existed, codes were developed for those fields. Locations were truncated to ten characters. The category "trend" was the most difficult aspect of the observation to computerize. There was much variability in the use of modifiers among the regional editors. For the most part, terms used by the compilers were utilized—rare, common, latest, largest, absent, etc. Altogether, about 100 different terms were coded for this category. The majority of terms referred to abundance, time, direction, distribution, location, or behavior. It was sometimes difficult to determine the significance of the observation. For example, what does "noteworthy" mean—early arrival, population increase, or locally uncommon?

If computers were to be used on a regular basis for these observations, some standardization would be desirable, such as including dates for all observations, if only early and latest dates. Computers could be used in a number of ways to analyze the Spring season data. In this case the computer was used primarily to sort, order, and select the data to be discussed. In another application, all records of a particular species could be selected (Table 2). It might be possible in the future to follow the movement of individuals or concentrations of certain species.

I would conclude this introduction by encouraging the computerization of the seasonal reports of *American Birds*. Changes such as these would provide the biologist with greater access to the wealth of information contained therein.

Table 2. Numbers of selected Eurasian species reported from Canada and the contiguous United States, Spring 1982

Species	Total No. Individuals Reported	No. of States and Provinces Reporting	No. of Regions Reporting	Region* Reporting Largest No
Green-winged Teal (Eurasian)	22	10	5	NPC
Garganey	2	2	2	MPR, MPC
Eurasian Wigeon	65	27	15	NEMA
Tufted Duck	4	2	2	NPC
Hobby	1	1	1	NRMI
Curlew Sandpiper	8	7	7	HUDE
Bar-tailed Godwit	1	1	1	HUDE
Ruff	50	22	9	HUDE
Black-headed Gull	40	10	6	NEMA
Little Gull	57	11	10	ONT
White Wagtail (black-backed)	2	2	2	NPC, SAC

*Region Abbreviations: NPC = Northern Pacific Coast; MPR = Middlewestern Prairie; MPC = Middle Pacific Coast; NEMA = Northeastern Maritime; NRMI = Northern Rocky Mountain-Intermountain, HUDE = Hudson-Delaware; ONT = Ontario; SAC = Southern Atlantic Coast

WEATHER

WEATHER DURING THE Spring of 1981 was described as being "so uneventful that it seemed to have little bearing on migration." Weather during this past spring was anything but uneventful; its effect on migration was conspicuous. For much of the area covered by this report winter never seemed ready to leave.

March was colder than normal across most of the United States and Canada. However, the southeastern part of the United States was warmer than normal for parts of the month. In the north, lakes remained frozen 1-2 weeks later than normal. There was a brief period of warmer weather accompanying a warm low in the Upper Midwest in the second week of March. Relief was temporary, as cooler-than-normal temperatures returned and remained until the last week of March across the north.

For a few days at the end of March and the beginning of April, winter finally seemed to loosen its grip. Warmer temperatures associated with generally windy conditions prevailed. The brief period of warm temperatures was shattered by the passage of an intense low-pressure cell that moved rapidly across the country from the Prairie Provinces to the East Coast during the period April 5-7. Several all-time low barometric readings were made in Wisconsin and Michigan as the system tracked east.

The low drew large masses of cold air from northern Canada. Record daily low temperatures resulted for numerous locations with daily highs below freezing at numerous sites. In addition, record low temperatures for the month were set at scattered localities. Strong gusty winds accompanying the low

reached as high as 80 m.p.h. in Michigan and a heavy snowfall (8 to 18 inches) blanketed locations all the way to the coast. The unusual cold snap persisted for almost a week. The rest of April remained cooler than average over wide areas; strong cold fronts pushed all the way to the South Texas Coast.

THE FIRST HALF of May improved as above-average temperatures arrived in the first week of May from the East Coast (Hudson-Delaware Region and south) northwest to the Western Great Lakes and west through the Southern Great Plains. This period was relatively dry in some areas.

Late May was again cool but also wet over most of the country. In much of the midsection of the United States south to Texas, precipitation was especially heavy and farmland received too much rain.

Normal weather was the exception this Spring. Atypical weather included: a violent storm through the Middle Pacific Coast Region in late March to early April which dumped up to four feet of snow in the mountains; very cold wet weather in the Northern Great Plains in mid-May; and a late snowstorm in early May and a gale in late May in the Prairie Provinces.

Precipitation in May ended the severe drought in Florida and brought improved water conditions to the prairies. Hawaii was wet during March, but then got progressively drier through May. The trend in the West Indies was reversed with May being the wettest month.

The effect of below-average spring temperatures on migration was predictable. Birds were noticeably late during March and April—anywhere from 1-2 weeks over large portions of the report area. In the West, the difference was less pronounced, but birds were slow in moving to higher elevations. By mid-May, migration was largely back on schedule as later migrants caught up with earlier migrants that had been delayed by inclement weather. In places, during May, migration advanced two weeks in three or four days.

Loon migration was studied closely at Whitefish Point Bird Observatory in Michigan's Upper Peninsula and at Point Judith, Rhode Island. At Whitefish Point, where migration was delayed by lingering ice, the total for Common Loons for the Spring was 5013. The peak date was May 8, when 1895 Com-

mon Loons passed the Point. At Point Judith the largest daily totals were 545 on May 15 and 1027 on May 16. Numbers of loons were still passing Point Judith at the end of the period. The 40,000 Eared Grebes at Bear River, Utah, doesn't approach last year's 100,000 at Great Salt Lake.

NORTHERN FULMARS were in abundance on March 3 at George's Bank, where 5000 were observed. One to 2000 Sooty Shearwaters attended the opening of the commercial squid season on May 7 at Monterey Bay. An important movement of Sulids was reported off the Upper Texas coast. These unprecedented movements were observed off Galveston Island and the Bolivar Peninsula, with 1583 Gannets on March 20, the highest one-day count.

Lakes and ponds in the northern half of the continent retained their ice cover up to two weeks later than usual. Waterfowl migration was delayed accordingly. Concentrations were observed in Utah and in the central parts of the continent below the ice-free line. Central parts of the Middlewestern Prairie Region attracted good numbers of waterfowl. Once the lakes opened up, the waterfowl moved through very rapidly with large concentrations nonexistent in the upper Appalachian Region and parts of the Western Great Lakes. Geese were present in the usual locations and numbers, but nesting of resident Canada Geese averaged later than normal in the Middle Pacific Coast Region.

Unlike last year, water levels in the Prairie Provinces were more normal, which resulted in higher counts of waterfowl in that region. Consequently, waterfowl were not displaced farther west and north as in 1981. At Malheur N.W.R., there were 183,000 Pintail and 16,275 Ruddy Ducks, the highest recent total there for this species. Blair Nikula discusses some interesting observations regarding the Spring scoter migration in the Northeastern Maritime Region. Peaks at Point Judith, Rhode Island on April 24-25 included 16,000 Surf Scoters and 11,000 Black Scoters.

Hawk migration was slightly delayed in the northern United States, but good numbers were observed at key hawk watches in South Texas, Ontario, Western Great Lakes, and Niagara-Champplain regions, among others. Broad-winged Hawk totals included 17,324 at Braddock Bay, New York; 24,192 at

Derby Hill, New York, 11,211 at Whitefish Point Bird Observatory, Michigan; and 84,545 at Santa Ana N.W.R., Texas.

Shorebird migration was late in comparison to 1981; for many observers it was not very good. Comments from several disjunct regions, including Hawaii, were "unremarkable," "unexciting," and "not spectacular." However, excellent concentrations were found elsewhere. Again this year, Delaware Bay attracted spectacular numbers of shorebirds—on May 21, over 421,000 birds, mainly Semipalmated Sandpiper and Ruddy Turnstone with lesser numbers of Red Knot and Sanderling.

Other large concentrations (and the principal species) included: Chincoteague N.W.R., Virginia on May 22 (15,884 Ruddy Turnstone, 10,500 Red Knot, 4761 Dunlin, 2435 Short-billed Dowitcher, 7808 Semipalmated Sandpiper, and 10,033 Sanderling); Upper Mobile Bay, Alabama on April 16 (1125 Greater Yellowlegs, 1180 Lesser Yellowlegs, 6500 Least Sandpiper, 5500 Dunlin, 500 Long-billed Dowitcher, 3500 Short-billed Dowitcher, 2000 Semipalmated Sandpiper, and 6000 Western Sandpiper); Grand Isle, Louisiana on several dates (250 Black-bellied Plover, 122 Semipalmated Plover, 3000 Short-billed Dowitcher, 1050 Red Knot, 6402 Dunlin, and 4630 Western Sandpiper); and Bear River N.W.R., Utah (several thousand Marbled Godwit, 10,000 American Avocet, and 5000 Black-necked Stilt). Dunlin were also present in numbers in the Western Great Lakes with 7000 at Horicon N.W.R., Wisconsin on May 16-22 and 5000 in Bay County, Michigan on May 21.

INDIVIDUAL CONCENTRATIONS of Western Sandpiper were large with peaks of 60,000 at Roberts Bank, British Columbia on April 25 and 165,000 at Bowerman Basin, Hoquiam, and Ocean Shores, Washington on April 26. Black-bellied Plover peaked at 1000 at Beach Grove, Boundary Bay, British Columbia on April 26. Toss in over 20,000 Red Phalaropes migrating NE along the south edge of George's Bank on May 12-23 and several thousand Northern Phalaropes at Rock Springs, Wyoming on May 22 and this editor is envious *All* the shorebirds in my area in the past twelve years would fit in one of the smaller flocks above.

The passerine migration was a paradox. Along the entire East Coast to Florida, plus Niagara-Champlain, Middlewestern Prairie, Appalachian, and Southern Great Plains regions passerine numbers were low—warblers in particular. However, in areas of Ontario, Western Great Lakes, Central Southern, Prairie Provinces, Northern Great Plains, South Texas, and even Alaska the passerine migration was sometimes unbelievably high. Weather systems combined to cause groundings of birds in numbers that most of us only dream about.

There are only so many ways to say spectacular. In South Texas the numbers speak for themselves: 2000 Rose-breasted Grosbeaks on April 24 at Corpus Christi; 2000 Indigo Buntings on April 11 at Galveston Island; 1500-2000 Gray Catbirds in a 2-acre woods on the Bolivar Peninsulas on April 27; 2400 Magnolia Warblers at Galveston Island and 795 Magnolia Warblers at Bolivar Peninsula on May 7. These totals are just the tip of the iceberg, as many species were noted by the hundreds. Many observers along the Gulf Coast described the birding as the best in years, a result of large migrations encountering persistent rain along the Gulf Coast from Alabama to lower Texas. There were at least three major groundings the periods April 10-11, April 21-27, and May 7-9.

In the Northern Great Plains, a cold; wet period from May 5-20 "brought fantastic concentrations of thrushes, warblers, and sparrows to the ground." In the Prairie Provinces "a huge passerine migration" covered a "400-mile front May 17-20" with "one of the best warbler waves in years." At Moose Jaw, Saskatchewan on May 18, 1000 Swainson's Thrushes were present. At Prince Edward Point, Ontario "spectacular falls" caused by rain resulted in counts of 4500 Yellow-rumped Warblers and 7500 White-throated Sparrows. Migration in the Aleutian chain was also fantastic. Several species were present at Attu, Shemya, and Agattu in unprecedented numbers.

There were also groundings associated with the early April storm as thousands of birds migrated N with the warm winds at the beginning of April and were "stranded." As evidence, 10,000 American Robins were noted at Burlington, Ontario in reverse migration in three hours on April 4. In Sheridan, Wyoming on May 26 another

grounding of note occurred, thousands of Western Tanagers came down as the result of a low-pressure system.

The sparseness of birds on the East Coast no doubt relates to the strong easterly winds which kept trans-Gulf migrants away from the Florida coast and probably the other eastern regions as well. The few waves noted were primarily in the Northeastern Maritime Region in late May. On a less desirable note, at Derby Hill, New York 2,000,000 blackbirds were observed in migration in three hours on March 20.

MORTALITY

EVERY YEAR UNTOLD numbers of birds die during spring migration; their deaths are seldom observed. The significance of these mortalities is difficult to study and to understand. Death during migration occurs in many ways and from many causes, including: predation, starvation, collision, weather, pesticides, and oil pollution.

This Spring the reported mortality seems unusually common. The massive storm in early April had the most far-reaching effect, with mortalities reported the entire length of its path. Regions affected include the Western Great Lakes, Middlewestern Prairie, Ontario, Niagara-Champlain, Northeastern Maritime, and possibly others. Thousands died in the Western Great Lakes alone. Mortality was not confined to starvation. Incidences of predation were frequently encountered.

Hundreds of birds became traffic fatalities along our roads. Warm rains preceded the snow, and brought massive numbers of earthworms onto the roads. When the snow ceased, the only areas clear of snow were roads, still strewn with earthworms. As the birds fed on the pavement, at first they were strong and there was little mortality. But as they became weaker and breast muscles atrophied, many fell victims to cars. A publicity campaign to encourage people to clear openings away from roads and provide suitable food saved many birds.

Species suffering conspicuous losses were the Killdeer, American Woodcock, Common Flicker, Eastern Phoebe, Tree Swallow, Purple Martin, American Robin, Eastern Bluebird, and both meadowlarks. Species such as the Golden-crowned Kinglet probably suffered as well. Losses might have been

much worse for the Tree Swallow except for the lateness of its migration. Numerous birds were found dead in nest boxes; apparently others undertook reverse migration. Some Tree Swallows were observed walking along the ice of a lake attempting to feed. Breeding Bird Survey results for 1982 will help to determine the impact on local populations.

All along the Texas coast, during the period of April 21-27, a cold front and steady rain caused extensive "falls." Many birds that did reach the coast were exhausted. "Massive mortality" was observed. As Smith and McCrimmon point out (*AB*, 33(5):750), bird kills over the Gulf of Mexico are of a magnitude that could shape avian distribution and abundance. Depending on the demographics of the population killed, an entire local population could be affected.

In the Central Valley of California an unusually cold period resulted in the death of 500 swallows—mostly Cliff Swallows. Another notable kill occurred in the Prairie Provinces following a blizzard on May 29. In the Southern Great Plains wind storms and heavy flooding destroyed many nests. Elsewhere, 99% of the nests in a Wood Stork colony (300 nests) failed and an entire colony of Brown Pelicans (200 nests) failed at Merritt Island, Florida. At Mata Redonda Pond in Puerto Rico over 100 Brown Pelicans died of as yet unknown causes. Numbers of Boreal Owls in northern Minnesota were found dead or dying. In the Mountain West Region Barn Owls suffered; 100 owls were found dead along the Wasatch Front. Banding totals for parts of this region were half of normal.

POPULATION TRENDS

IN ADDITION TO population changes resulting from Spring mortality, many regional editors commented on status changes. Species included on the Blue List are discussed elsewhere.

Several population declines and range contractions continue as a result of unusually hard winters which have occurred over much of the area during the last six years. Bobwhite numbers were still way down over much of the northern half of its range. In Michigan the population is only about 2-3% of its former level. Totals of both kinglets remain low, particularly in the Appala-

chian and Niagara-Champlain regions, with Golden-crowned Kinglet also noticeably scarce in the Northeastern Maritime Region. Winter Wren numbers remain down in these regions and in the Western Great Lakes and Middlewestern Prairie as well. While the Carolina Wren received few comments, this species is still absent from much of its former range in the north; two Carolina Wrens attempted to colonize an oil rig on the edge of George's Bank a month apart.

In California, unusually harsh weather this past winter was blamed for declines in the populations of the Mountain Chickadee, Chestnut-backed Chickadee, Pygmy Nuthatch, Hutton's Vireo, Townsend's Warbler, and resident White-crowned Sparrow. In the East, warblers associated with spruce budworm outbreaks were down again this Spring in both the Hudson-Delaware and Northeastern Maritime regions. In the Middle Pacific Coast Region microtine-dependent owls were scarce.

The Greater Prairie Chicken in Michigan is going the way of the Heath Hen. The last remaining lek in 1981 failed to materialize this spring. Snowy Owls had been in the vicinity during recent winters. Other declines mentioned include: the Red-headed Woodpecker in the Western Great Lakes; Common Gallinule in the Middlewestern Prairie; Bushtit in the Southern Great Plains; Mourning Dove in the Mountain West; and Black Duck in the Appalachian Region. Red-necked Grebe numbers were down in Ontario and the Western Great Lakes, but up in the Niagara-Champlain Region, suggesting a shift in migration. Both Yellow-billed and Black-billed cuckoos, as well as Bank and Rough-winged swallows were down in the Appalachian Region and Middlewestern Prairie Region. Thrushes also were low in the Appalachian and parts of the Western Great Lakes regions.

There was wide agreement among regions on expanding species. The "southern warblers" (Hooded, Kentucky, Yellow-throated, Worm-eating, and Swainson's warblers) were reported doing well in parts of their regular ranges. In addition, each were reported in unusual numbers north of their usual ranges, as several overflights were noted this Spring. The White-eyed Vireo was also involved and is apparently on the increase in several regions. The Blue-gray Gnatcatcher continues to

expand north as do the Black Vulture and Chuck-will's-widow.

Following an excellent fall Goshawk flight, the species was noted in larger-than-average numbers this Spring. Wilson's Phalarope, Turkey Vulture and Common Raven, were said to be expanding in at least two regions each. The House Finch is still expanding north and west with populations increasing in parts of its existing range. The observations of increased numbers of Double-crested Cormorant in the upper midwest and Appalachians were encouraging, as was an increase in sightings of Peregrine Falcons in the Prairie Provinces, Middlewestern Prairie Region, and West Indies. Roseate Terns have taken to nesting on rooftops in Key West as Least Terns have done in the past. Nationwide, the Pine Siskin was the species most mentioned as increasing in the aftermath of the winter influx. Pine Siskins remained to nest south of their usual range in scattered regions across the United States. The Common Redpoll also was widespread and remained much later than normal throughout the northern United States. Hoary Redpolls were more frequent as well.

BLUE-LISTED SPECIES

THIRTY SPECIES FORMALLY are designated on the 1982 Blue List, indicating concern that a species is declining or undergoing range contraction of a non-cyclical nature over all or part of its range. The List is designed to call attention to such species so that their populations might be more closely monitored. In reviewing the observations included in "The Spring Migration" for 1982, I was disappointed that many of these species had received so little attention in regional accounts. For example, the Snowy Plover was reported in only five reports, with one a report of a migratory concentration on February 18 (outside the normal period of this report). Absence of the Snowy Plover from an area where normally found should receive a comment to that effect. Documenting Blue-listed species should be a major objective of the seasonal surveys, and easy to initiate. Here are my observations for several Blue-listed species.

Least Bitterns were reported from nine regions. Editors from four of them (Niagara-Champlain, Western Great Lakes, Middlewestern Prairie, and Northeastern Maritime) indicated this species was scarce in all or parts of the

regions. With a similar number of regions reporting, the prognosis for the American Bittern is also of some concern. The species was down in the Prairie Provinces and the Niagara-Champlain regions. Contributors from the Northeastern Maritime Region noted it was scarce everywhere. The Sharp-shinned Hawk, scarce in the Northeastern Maritime Region as well as in southern Alberta, was present in good numbers at several of the hawk watches, including Braddock Bay, New York, where the season total was the highest yet recorded.

Red-shouldered and Swainson's hawks were noted in normal numbers in most areas, while the Marsh Hawk migration was thought to be up in three separate regions, with Derby Hill in New York exceeding its highest previous total in a Spring season. King Rail and Piping Plover continue to be legitimate sources of concern. There were only 21 King Rails reported from four regions. The Piping Plover reports were all of 1-3 individuals, except a count of 41 individuals at Chincoteague N.W.R., on April 9 and 10.

As was mentioned earlier, it is apparent that certain species are under-reported by contributors and/or regional editors. I assume that uniqueness and conspicuousness would increase the likelihood of a species being reported. Therefore, how does one account for 56 reports of Whimbrels totaling several thousand birds and only 10 reports of Long-billed Curlews totaling less than 50 individuals?

The status of the Least Tern has declined again. In the Florida Region, entire colonies failed to return to traditional nesting sites. The extent of the decline prompted Herbert Kale to suggest that a catastrophic event had occurred to the population after the birds departed from Florida last fall. No reports of increases of Least Terns were received at other locations to indicate that a population shift had taken place. The Black Tern fared slightly better, but also has problems. This species was present in good numbers in the eastern half of the Southern Great Plains and the Prairie Provinces but was scarce or absent in three regions and the western half of the Southern Great Plains.

On a positive note, Short-eared Owl reports were somewhat improved except in the Prairie Provinces where the species is still way down in numbers. Reported declines far outnumbered re-

ported increases in that region. Decline of the Ruby-throated Hummingbird recently has centered in the Hudson-Delaware area. This Spring, discouraging comments were received from three additional regions. Despite increases in parts of four regions, it will be a long time before the Bewick's Wren occupies large parts of its range vacated in previous years.

The Loggerhead Shrike has suffered a drastic reduction over much of its range. Spring reports of slightly more individuals in Minnesota, Indiana, Ohio, and Illinois were overshadowed by the numerous comments of continued declines in the East and Northeast.

Observations of Eastern Bluebirds were up slightly in four regions from the Dakotas eastward, despite the early April blizzard which caused mortalities at scattered locations from the Great Lakes to the East Coast. On the Kalamazoo Nature Center's nest-box trail in southern Michigan, mortality of adults attributable to the April storm was in the range of 10-15%. Bell's Vireos are pioneering new ground but the birds in the Southern Great Plains and Illinois continue to fare poorly. Golden-winged Warblers were noted west and north of their traditional range, but again news from some of the more usual sites was not so encouraging.

NOW YOU SEE IT—NOW YOU DON'T

PROBABLY ONLY A small proportion of the observations during any season ever reach *American Birds*. If the original observer happens to send it in, it still must slip past a sub-regional editor, and often a state editor before the regional editor gets to see it. Tens of thousands of observations never reach the regional editor; by the time he exercises his prerogative, the baby has gone out with the bath water.

The computer is a harsh critic. Omissions of data are as conspicuous in the printout as the trends for which I searched. Hundreds of species are represented by only a handful of observations each, and many more species are not represented. In an effort to gain insight into the species which are not reported, an *ABA Checklist* was compared with the computer printout. From this, David Powell (an associate who counts listing as one of his ornithological pursuits) and I compiled a list of all

species which we and our colleagues had seen and which certainly should have been seen this Spring but were not present on the printout. The result: 91 species are not included in any regional report—compared to 616 species in these regional reports (excluding the Hawaiian Islands and West Indies regions and exotics).

Geographically, the omitted species were largely "local specialties"—birds with restricted ranges. The majority of the omitted species, concentrated in the Southwest, West, and Alaska, inhabit areas where human population densities are low.

Regional editors should pay more attention to those species which have restricted ranges in order to give visiting "birders" up-to-date information, to supply data on species which might need "Blue-list" classification, and to give people a barometer as to the health of our environment.

EARLY AND LATE

The number of earliest arrivals and latest departures listed each Spring never ceases to amaze me. When a Spring is late in arriving, as this one was, the earliest arrivals are even more surprising, but not the latest departures. Choosing from the tremendous array of dates is made more difficult by a lack of familiarity with the individual sites, the number of years of observation at the site, and the number of days the observation exceeds the previous record.

In the pages of "The Spring Migration," which follows, there are hundreds of examples of early, very early, earliest, late, very late, and latest arrival and departure dates. While state and regional records are certainly significant, local records can be misleading. Jules Evens and Ron LeValley point this out when comparing earliest records for Western Flycatchers at two sites just 20 miles apart in the Middle Pacific Coast. I will leave it to you, the reader, to determine which of the early and late records are significant.

RARITIES

AS A BIOLOGIST, I fail to recognize much of redeeming value in the preoccupation with the isolated occurrence of a luckless waif a thousand miles off-course. As a birder, the potential for finding such a casual or accidental stray has been a motivating force for me for

years. Unfortunately I am a victim of fate, or rather geography. An inland location in Michigan is not the place any self-respecting vagrant would care to visit. There are others of you more fortunate, as illustrated by the multitude of unusual occurrences contained in the 1982 Spring reports.

A significant record is that of a Red-flanked Bluetail from Attu, which is not only a first Alaskan record, but a first North American record as well. A White-collared Swift from California is apparently the third record for this species north of Mexico. A Hobby in British Columbia is listed as the second North American record, assuming that the bird was not an escape.

Also noteworthy were White Wagtails in British Columbia and in North Carolina, which is the first record for eastern North America. Both birds were of the black-backed race (now considered a species).

Including the above, there were 27 birds added to state or provincial lists. A Swainson's Warbler was found in Massachusetts—a first regional record as well. Other firsts include Hermit Warbler and Curlew Sandpiper in Quebec, White-faced Ibis and Mississippi Kite from Delaware; Ivory Gull from Vermont; Prairie Falcon and Caribbean Coot from Michigan; Hermit Warbler from Wisconsin; Magnificent Frigatebird from Missouri; Ross' Goose from Ohio; Garganey, Mountain Bluebird, and Brewer's Sparrow from Illinois; Lesser Nighthawk from Alabama (heard, not seen); Black-whiskered Vireo from Mississippi; Hepatic Tanager from Louisiana; Curlew Sandpiper from North Dakota; Red Phalarope from South Dakota; Connecticut Warbler from Oregon; Barred Owl and White-collared Swift from California, and Mute Swan from New Mexico.

White-winged Dove on St. John, U.S. Virgin Islands; a Black Swift at Saba, Netherlands Antilles; Starling from St. Croix, U.S. Virgin Islands; and a Nashville Warbler from Caicos, British West Indies were all unusual. In Hawaii, Great Blue Heron, Great Egret, a Black-legged Kittiwake on the main Hawaiian Islands, and a pair of rare Po'o Uli were very good finds.

A Black-browed Albatross in the North Atlantic was unusual, as were Western Grebe, Mississippi Kite, Gull-billed Tern, Burrowing Owl, Scissor-tailed Flycatcher, Painted Bunting, Lark Bunting, Golden-crowned Spar-

row, and Smith's Longspur in the Northeastern Maritime Region. The vagrancy of the Mississippi Kite is truly amazing. It occurred east, north, and west of its normal range. A Sabine's Gull was unprecedented in Spring in New Jersey, while the Boreal Chickadee in Delaware represented only the second state record. Two additional Magnificent Frigatebirds were unusual. One in inland Florida, but more amazingly an individual in inland New Jersey following a blizzard.

A Harcourt's Storm-Petrel was carefully identified off the Southern Atlantic Coast (but still unconfirmed) and a Masked Duck in North Carolina was only that region's second observation. Other outstanding records from this region were Swainson's Hawk, Sabine's Gull, Arctic Tern, nesting Sooty Tern, and Sprague's Pipit. Florida's most spectacular observation was of a potoo, probably Common, which apparently arrived by ship from Panama.

IN THE WESTERN Great Lakes a rash of unusual observations was made. Anhinga, Swallow-tailed Kite, and Curlew Sandpiper were accidental, as were Chestnut-collared Longspur and Cinnamon Teal in Michigan, and Wilson's

Plover and Yellow-throated Warbler in Minnesota. A Boreal Owl nest in Minnesota was the third nest of this species in the contiguous United States. A Sandhill Crane finally nested in Indiana after several years of nesting a few hundred feet to the north in Michigan. A Mew Gull in Ohio in November and December of 1981 was confirmed as that state's first record.

An Eskimo Curlew in the Prairie Provinces and a Bristle-thighed Curlew in the Northern Pacific Coast Region were outstanding. Mew Gull and Wheatear were first spring records in southern Alberta and southern Manitoba, respectively. Louisiana Herons are showing up with greater regularity in the north. Birds were present this year in North Dakota, Minnesota, Wisconsin, and Michigan. North Dakota also had Common Gallinule and Sabine's Gull. In the Southwest, an Arctic Tern in Arizona and a Philadelphia Vireo were observed.

Unusual nesting records include Red-head in Oklahoma, Inca Dove in Nevada, Olive Warbler in New Mexico, and the first nest of the White-tailed Eagle in North America at Attu in the Aleutian Islands.

The records from Alaska and the

West Coast are from another world Ringed Plover, Green Sandpiper, Red-breasted Flycatcher, Pechora Pipit, Rubythroat, and Fieldfare are just a few examples of the "exotic" birds that occur there. Farther south, California attracts birds from the East. There are nearly as many warblers in California as in Michigan and more of most anything else. Since the list of West Coast rarities would fill a page I will not repeat them here but I encourage you to read these fine accounts.

ACKNOWLEDGMENTS

THE WORK INVOLVED in analyzing "The Spring Migration" is complete but hardly begun. Time and space are short and the wealth of data great. I have drawn from some reports more than others in order to stress those areas where I am most familiar. I thank Dr. H. Lewis Batts, Jr., Jean Gal, Linda Ormond, and especially Monica Ann Evans, for editorial assistance, and Judi Cummins for assistance with data entry.

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ERRATA

Flipped photographs of flycatchers, *American Birds*, 36 (3) 245, May, 1982, resulted in captions obviously reversed. To correct the captions to Figures 3, 4, and 5, pg. 245 cover them with the captions below. The other captions are correct.

Figure 3. *Relative hues of yellow on bellies of Wied's Crested (bottom) and Ash-throated (top) flycatchers. Also note relative widths of bills.*

Figure 4. *Relative contrast between breast and bellies of Great Crested (bottom) and Ash-throated (top) flycatchers.*

Figure 5. *Comparison of back colors of Great Crested (bottom) and Ash-throated (top) flycatchers.*